

FIG.1

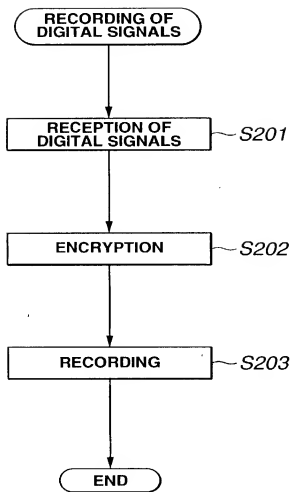


FIG.2A

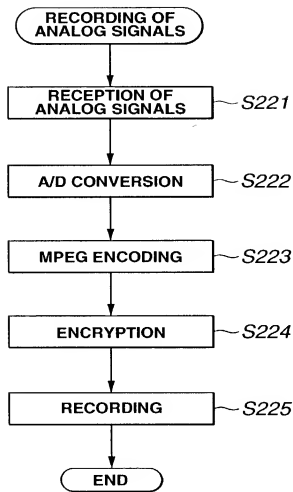


FIG.2B

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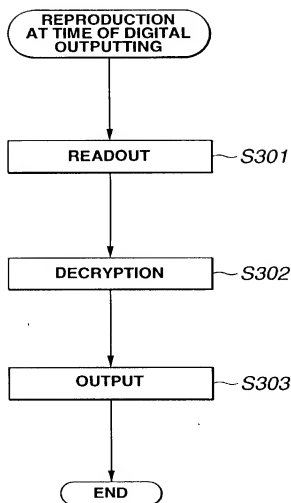


FIG.3A

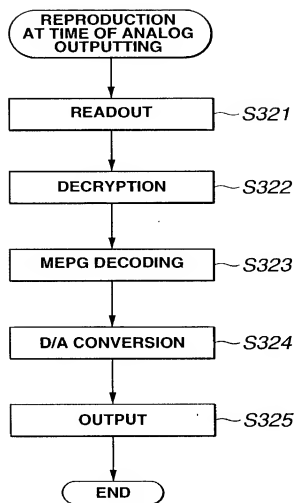
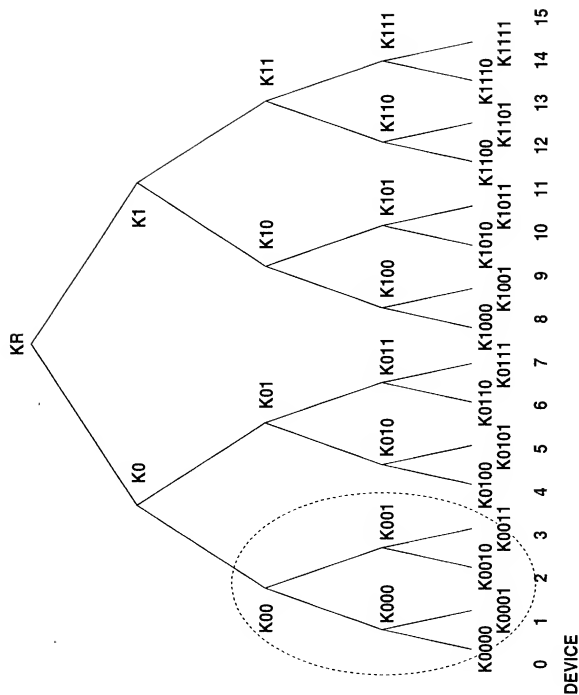


FIG.3B

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**FIG.4**

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KRB : Key Renewal Block INSTANCE 1  
SEND ROOT KEY  $K(t)R$  AT TIME  $t$  TO DEVICES 0, 1, 2

GENERATION : $t$	
INDEX	ENCRYPTED KEY
0	$Enc(K(t)0, K(t)R)$
00	$Enc(K(t)00, K(t)0)$
000	$Enc(K000, K(t)00)$
001	$Enc(K(t)001, K(t)00)$
0010	$Enc(K0010, K(t)001)$

**FIG.5A**

KRB : Key Renewal Block INSTANCE 2  
SEND ROOT KEY  $K(t)R$  AT TIME  $t$  TO DEVICES 0, 1, 2

GENERATION : $t$	
INDEX	ENCRYPTED KEY
000	$Enc(K000, K(t)00)$
001	$Enc(K(t)001, K(t)00)$
0010	$Enc(K0010, K(t)001)$

**FIG.5B**

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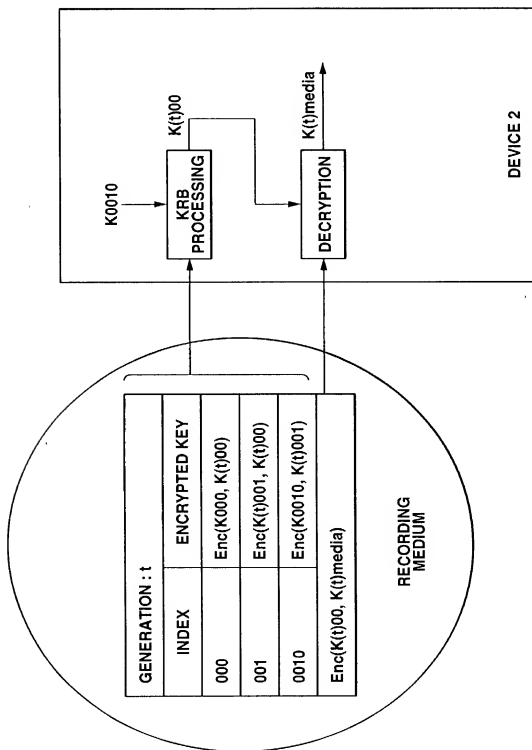


FIG.6

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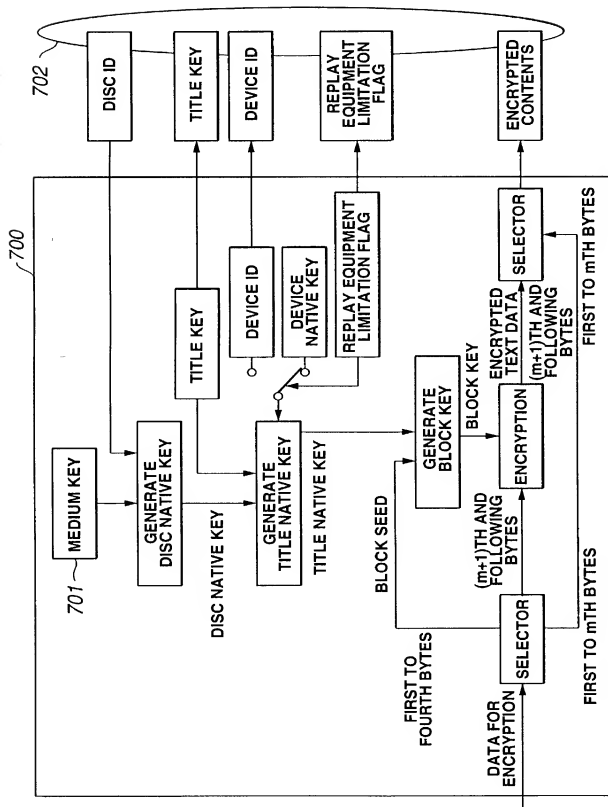
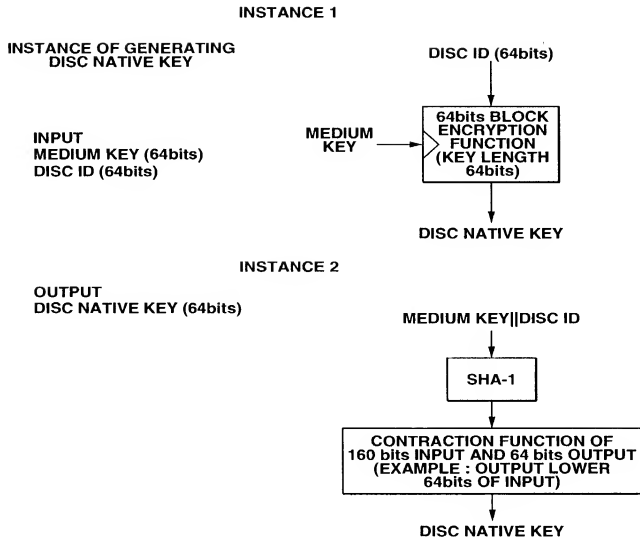


FIG. 7

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**FIG.8**



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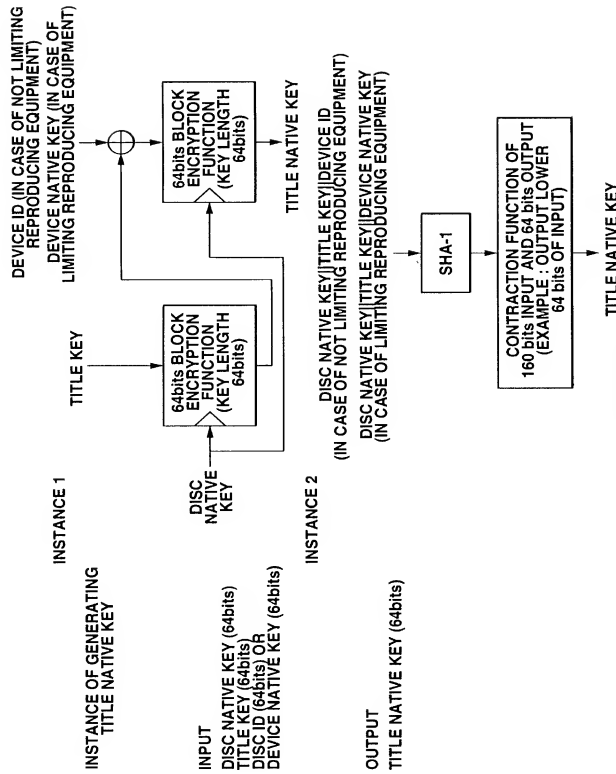


FIG.9

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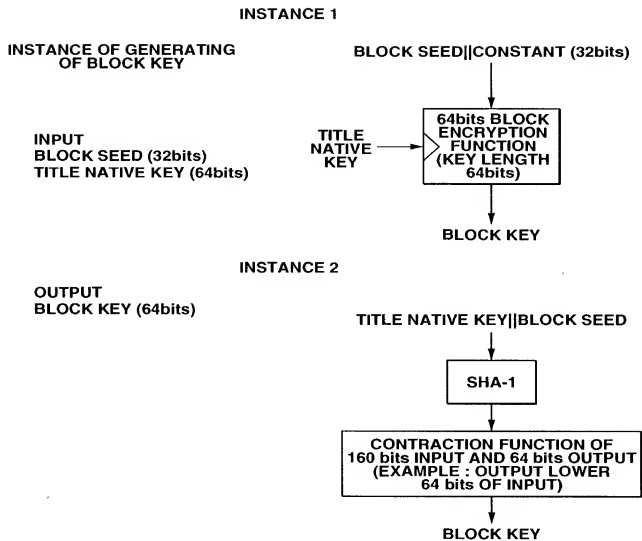


FIG.10

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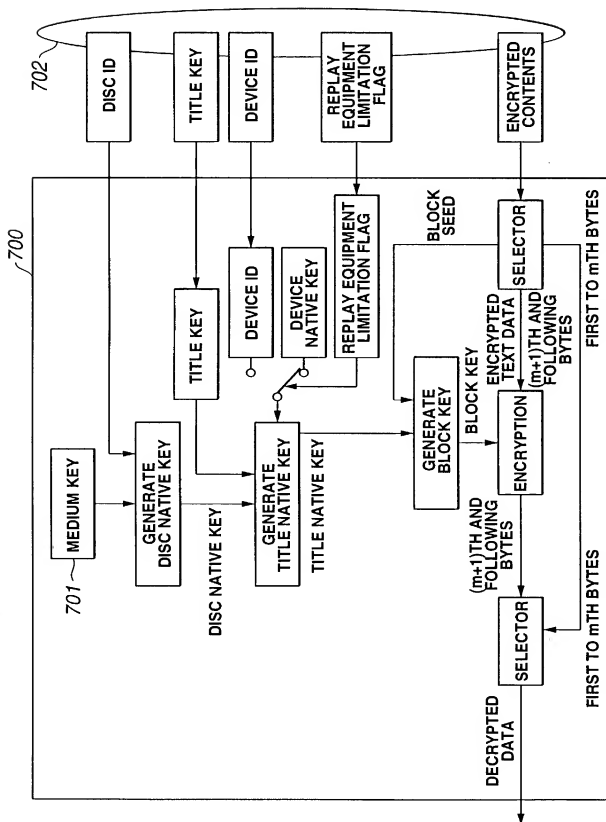


FIG.11

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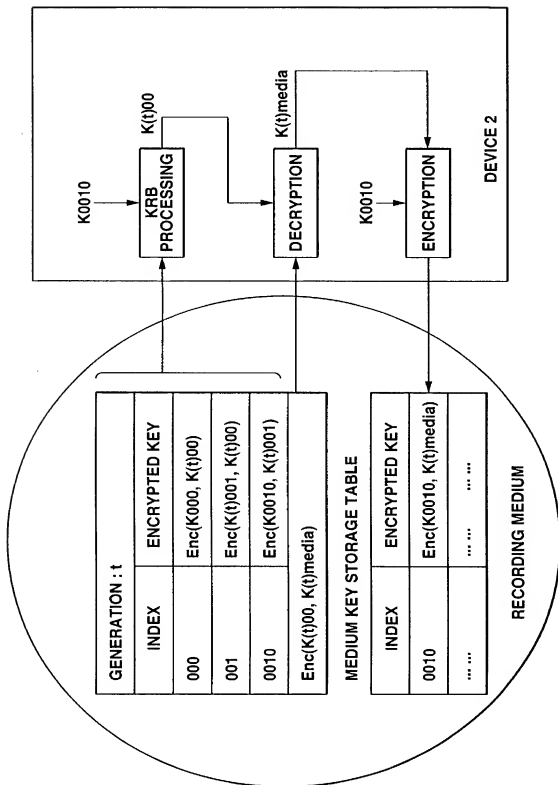


FIG.12

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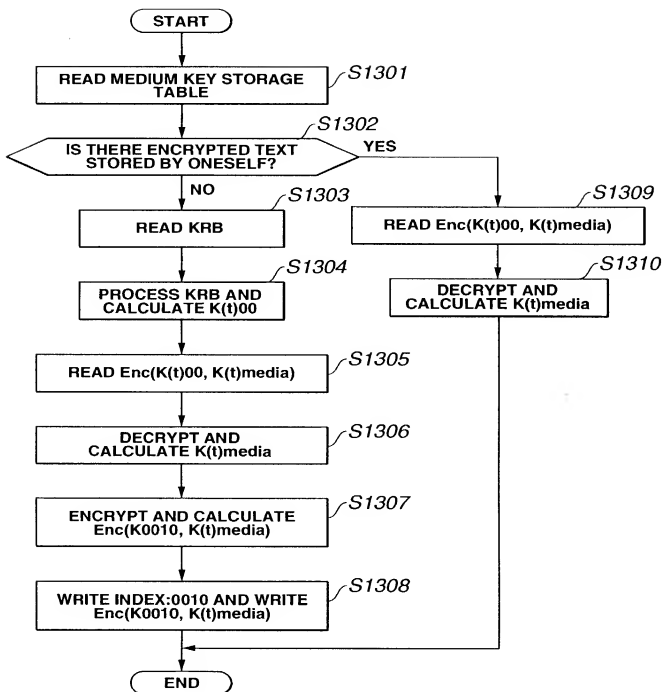


FIG.13

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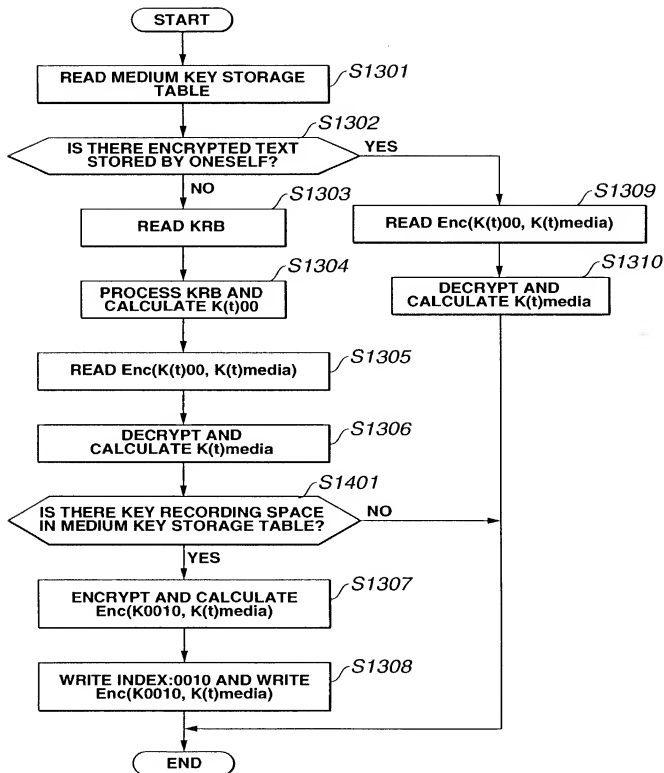


FIG.14

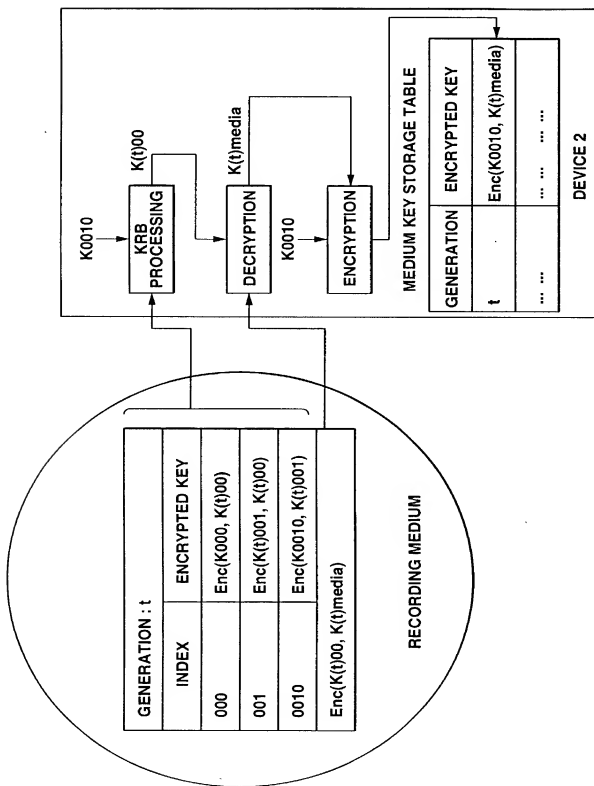


FIG.15

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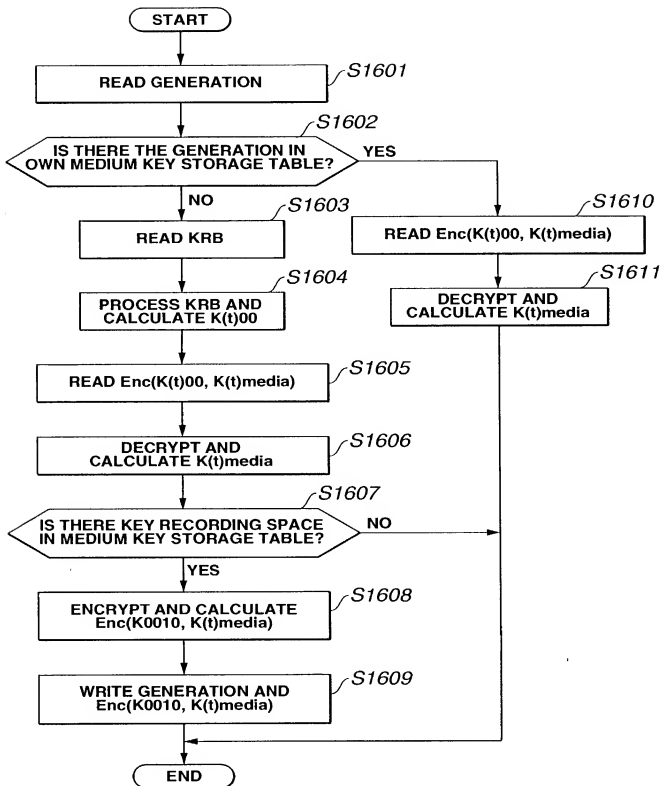


FIG.16



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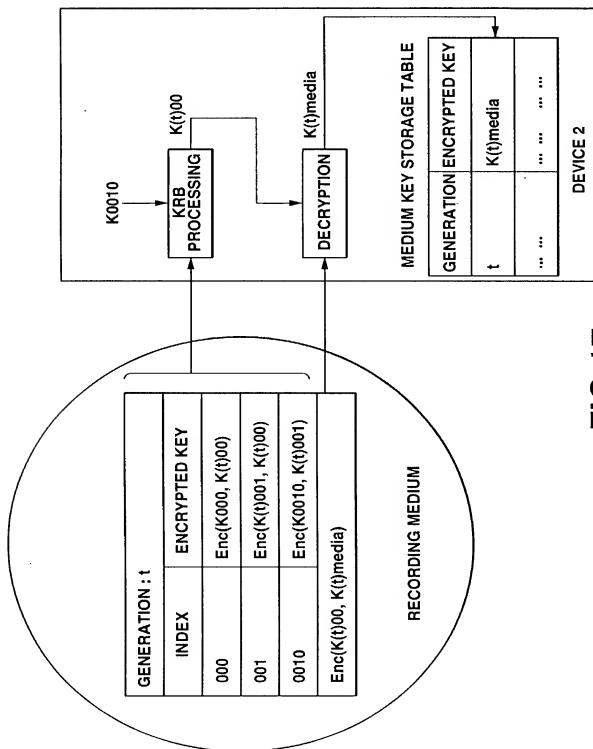


FIG.17

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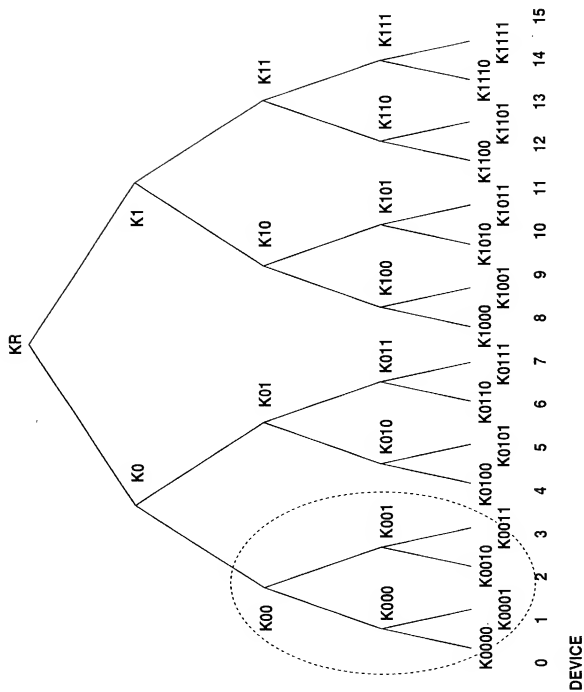


FIG.18

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KRB : Key Renewal Block INSTANCE 1  
SEND ROOT KEY  $K(t)R$  AT TIME  $t$  TO DEVICES 0, 1, 2

GENERATION : $t$	
INDEX	ENCRYPTED KEY
0	$\text{Enc}(K(t)0, K(t)R)$
00	$\text{Enc}(K(t)00, K(t)0)$
000	$\text{Enc}(K000, K(t)00)$
001	$\text{Enc}(K(t)001, K(t)00)$
0010	$\text{Enc}(K0010, K(t)001)$

**FIG.19A**

KRB : Key Renewal Block INSTANCE 2  
SEND ROOT KEY  $K(t)R$  AT TIME  $t$  TO DEVICES 0, 1, 2

GENERATION : $t$	
INDEX	ENCRYPTED KEY
000	$\text{Enc}(K000, K(t)00)$
001	$\text{Enc}(K(t)001, K(t)00)$
0010	$\text{Enc}(K0010, K(t)001)$

**FIG.19B**

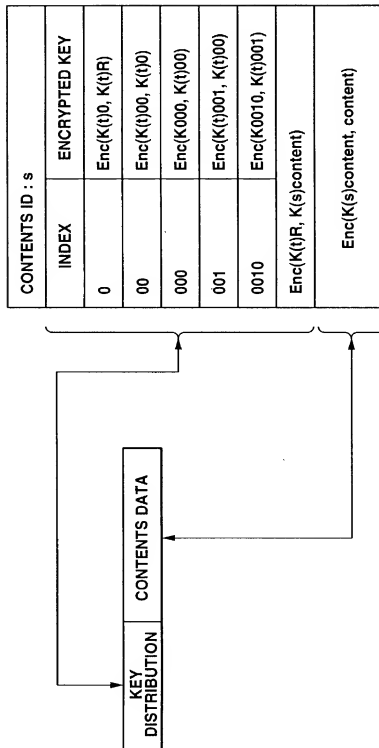


FIG.20

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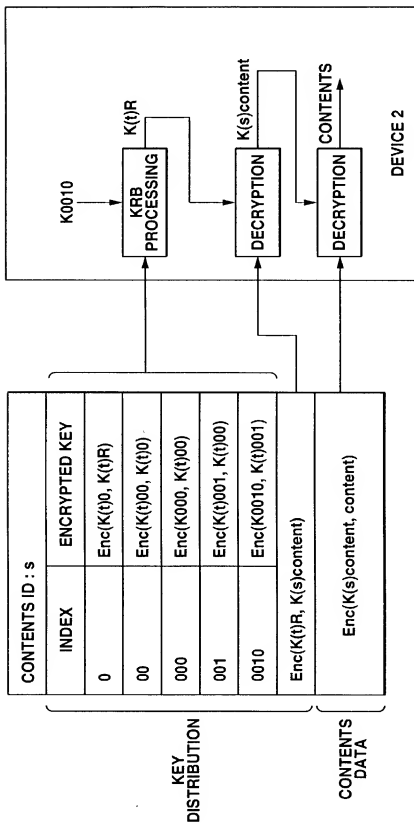


FIG.21

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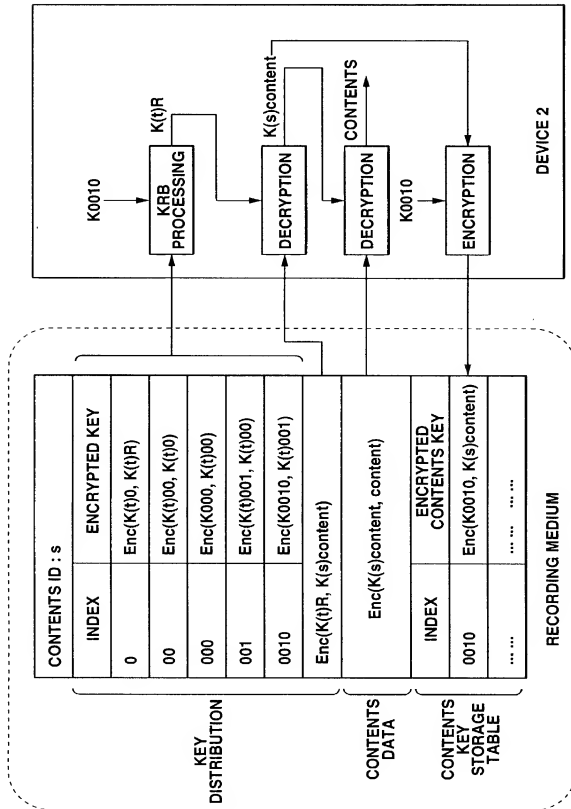


FIG.22

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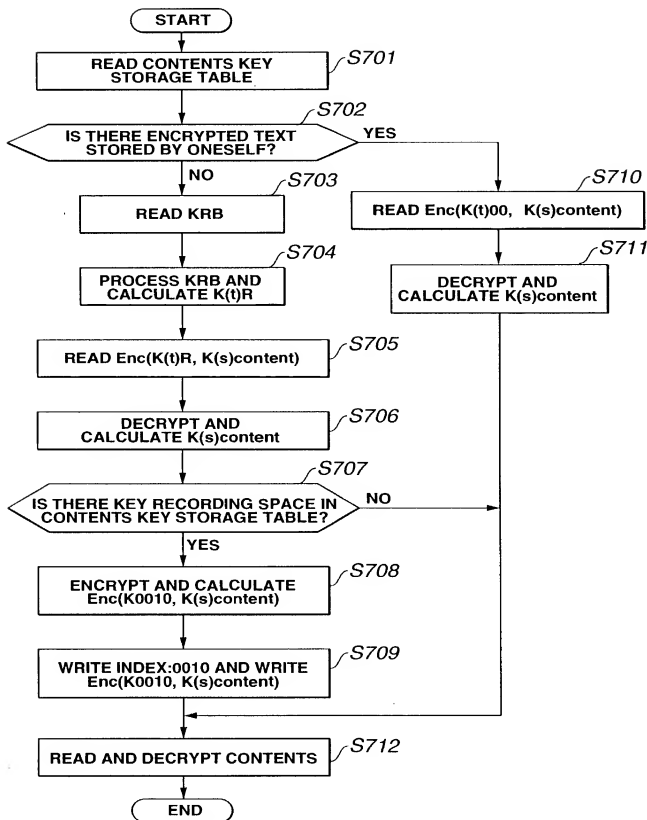


FIG.23

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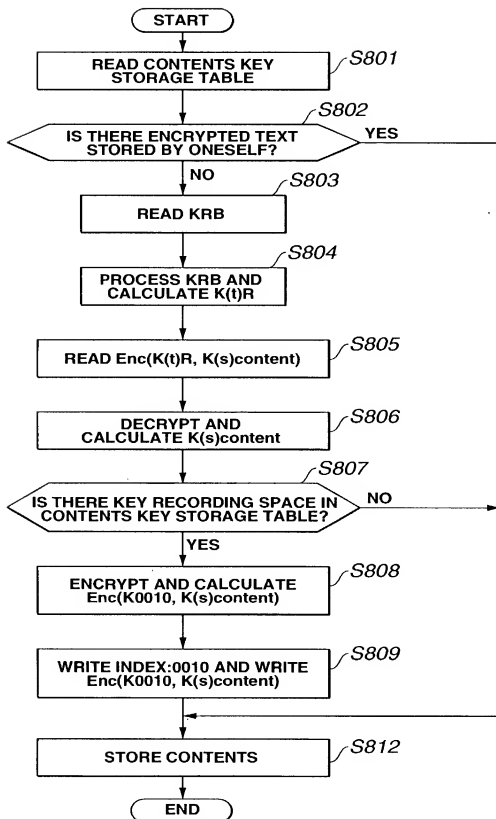


FIG.24



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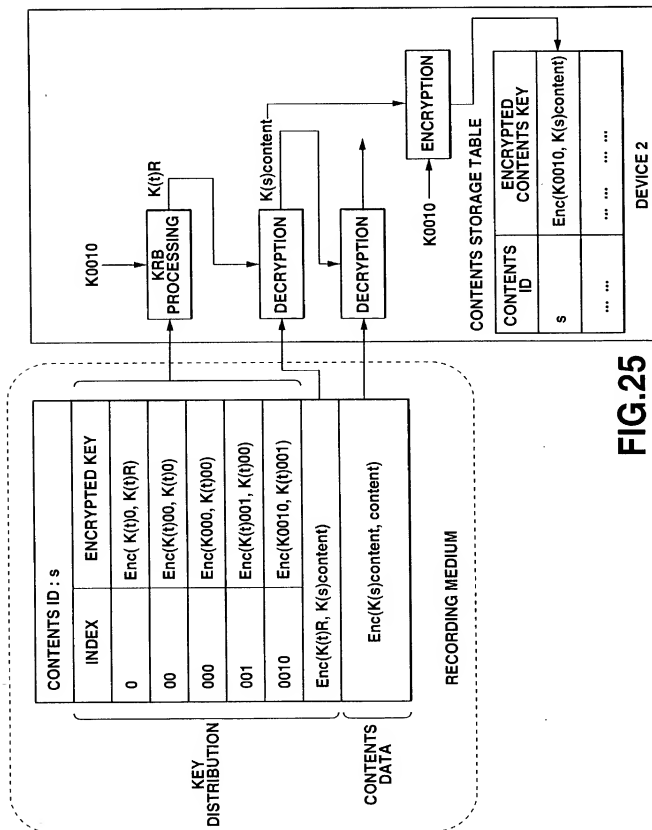


FIG.25

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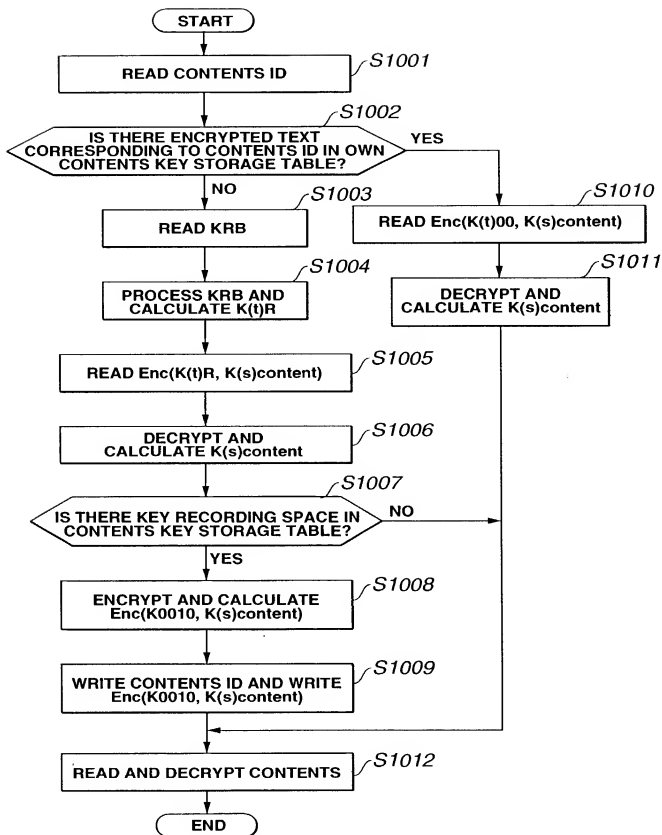


FIG.26

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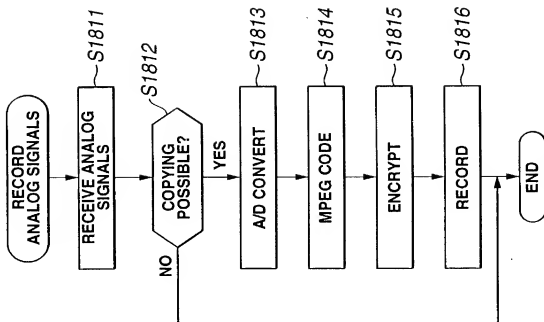


FIG. 27B

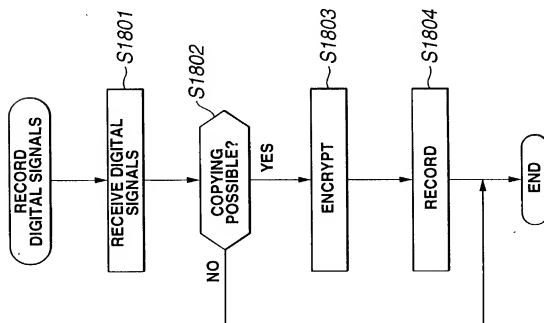
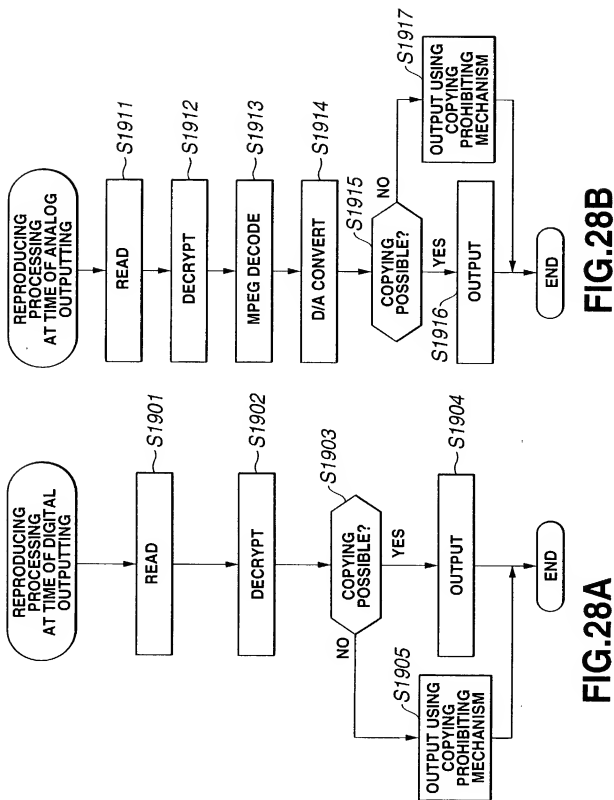
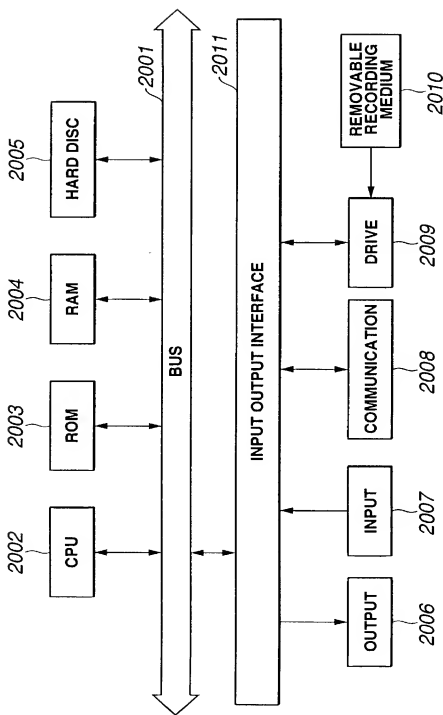


FIG. 27A

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**FIG.29**